

## GAS SENSOR DEVICE

### ABSTRACT OF THE DISCLOSURE

**[0061]** A gas sensor device including a semiconductor substrate; one or more catalytic gate-electrodes deposited on a surface of the semiconductor substrate; one or more ohmic contacts deposited on the surface of the semiconductor substrate and a passivation layer deposited on at least a portion of the surface; wherein the semiconductor substrate includes a material selected from the group consisting of silicon carbide, diamond, Group III nitrides, alloys of Group III nitrides, zinc oxide, and any combinations thereof.